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PROCEDURE FOR PRODUCING AN EGG FOR THE CONFECTIONERY INDUSTRY BASED ON CHOCOLATE AND/OR PASTRY CREAM, AND AN EGG REALIZED IN THIS WAY

DESCRIPTION

The present invention relates to an egg for the confectionery industry based on chocolate and/or pastry cream, and to a procedure for its realization.

In the confectionery industry chocolate eggs are known, formed by two half-shells perimetrally joined for delimiting a compartment usually intended to house a surprise inside it.

The process generally used for realizing the egg envisages the forming and subsequent joining of the two half-shells.

To form a half-shell, the melted chocolate is poured until it fills a cavity of a mould.

Once filled, the mould is overturned and the layer of chocolate is calibrated according to the viscosity thereof and the mechanical actions, such as vibrations, exerted on the mould, before being cooled.

Alternatively, the layer of chocolate is calibrated with a cold punch which moulds the tempered chocolate on the wall of the mould.

The half-shell is perimetrally joined to another half-shell produced in the same way, possibly interposing a surprise between the half-shells.

One of the drawbacks of the known technique for producing chocolate eggs consists of the fact that in order to confer the necessary mechanical resistance it is necessary to provide a certain minimum thickness of chocolate.

However the cost of the quantity of chocolate used has a significant influence on the price of the final product.

In addition to the above, the use of a higher quantity of chocolate implies an increased calorie content which is not always considered positive in diets.

The technical task which is proposed for the present invention is, therefore, to create an egg for the confectionery industry based on chocolate and/or pastry cream, and a procedure for its realization which makes it possible to eliminate the technical drawbacks complained of in the known art.

Within the scope of this technical task, an object of the invention is to realize an egg for the confectionery industry which, with the same dimensions, envisages the use of a lower quantity of chocolate and/or pastry cream and, therefore, a reduced calorie content.

Another object of the invention is to realize an egg for the confectionery industry which can be handled for eating without getting hands and/or lips dirty with chocolate.

Another object of the invention is to realize an egg for the confectionery industry that even in the presence of an increase in temperature prevents the packaging wrapper getting stuck to the chocolate.

Another object of the invention is to realize an egg for the confectionery industry which, with the same dimensions, has adequate mechanical resistance although produced with a reduced quantity of chocolate and/or pastry cream.

The technical task, as well as these and other objects according to the present invention are achieved by realizing an egg for the confectionery industry, characterized in that it comprises two half-parts, each one comprising an internal chocolate and/or pastry cream half-shell externally covered by an external wafer biscuit half-shell, there being comprised a uniform increase in the thickness of the chocolate and/or pastry cream along a perimeter edge of the internal chocolate and/or pastry cream half-shell and a uniform decrease in the thickness of the wafer biscuit along a perimeter edge of the external wafer biscuit half-shell.

In a preferred embodiment of the invention the internal chocolate half-shell has a central portion in which the chocolate and/or pastry cream is of a constant thickness and a peripheral portion in which the chocolate and/or pastry cream exhibits said increase in thickness with respect to the thickness of

the chocolate and/or cream in said central portion, and in that the external wafer biscuit half-shell has a central portion in which the wafer biscuit is of a constant thickness and a peripheral portion in which the wafer biscuit exhibits said decrease in thickness with respect to the thickness of the wafer biscuit in said central portion.

In a preferred embodiment of the invention the perimeter edge of the external wafer biscuit half-shell is set back with respect to the perimeter edge of the internal chocolate and/or pastry cream half-shell.

In a preferred embodiment of the invention in said central portion the thickness of the wafer biscuit is greater than the thickness of the chocolate and/or pastry cream.

In a preferred embodiment of the invention the sum of the thickness of the chocolate and/or cream and the wafer biscuit at said central portion is equal to the sum of the thickness of the chocolate and/or pastry cream and the wafer biscuit at the perimeter edge of the internal chocolate and/or pastry cream half-shell and the external wafer biscuit half-shell.

In a preferred embodiment of the invention the uniform increase in thickness of the internal chocolate and/or cream half-shell and the uniform decrease in thickness of the external wafer biscuit half-shell are defined by a discontinuity in the variation of the radius of curvature of matching surfaces between the internal chocolate and/or pastry cream half-shell and the external wafer biscuit half-shell.

Finally, the present invention discloses a procedure for realizing an egg for the confectionery industry made up of two internal chocolate and/or pastry cream half-shells, each one externally covered by a corresponding external half-shell made of wafer biscuit, characterized in that it comprises the following steps:

- moulding the two external wafer biscuit half-shells with a uniform decrease in the thickness along a perimeter edge thereof;

- on each external wafer biscuit half-shell, moulding a corresponding internal chocolate and/or pastry cream half-shell with a uniform increase in thickness along a perimeter edge thereof, wherein the perimeter edge of the external wafer biscuit half-shell is arranged in a position set back from the perimeter edge of the corresponding internal chocolate and/or pastry cream half-shell;
- juxtaposing the two internal chocolate and/or cream half-shells along their perimeter edges, so as to create an empty space between the spaced perimeter edges of said external wafer biscuit half-shells; and
- joining the two juxtaposed internal chocolate and/or pastry cream half-shells by heating so as to soften said juxtaposed perimeter edges, thus causing interpenetration of said juxtaposed perimeter edges and causing the chocolate and/or pastry cream to spread in said empty space.

In substance, the present invention provides a chocolate and/or pastry cream egg in which the external wafer biscuit half-shells constitute a support for the internal chocolate and/or pastry cream shells so as to confer the necessary mechanical resistance to the product without it being necessary to greatly increase the thickness of the internal chocolate and/or pastry cream half-shells.

The mechanical resistance is optimized by the special provision of thicker perimeter edges of the internal chocolate and/or pastry cream half-shells which provide a localized excess of material necessary for realizing a solid join between the two half-shells.

Advantageously the thickening of the perimeter edges of the internal chocolate and/or pastry cream half-shells is compensated by a thinning to the same extent of the perimeter edges of the external wafer biscuit half-shells.

The setting back of the perimeter edges of the external wafer biscuit half-shells prevents any fragments, even partially detached from the perimeter edges of the external wafer biscuit half-shells at the end of moulding, becoming interposed between the perimeter edges of the juxtaposed internal chocolate and/or pastry cream half-shells and hampering the correct joining thereof.

Advantageously, the chocolate and/or pastry cream that melts during the moulding flows into the empty space between the perimeter edges of the external wafer biscuit half-shells and consolidates the join.

Further characteristics and advantages of the invention will become more clearly evident from the description of a preferred but non-limiting embodiment of the egg for the confectionery industry, and the procedure for its realization according to the invention, illustrated by way of non-limiting example in the appended drawings, in which:

figure 1 shows a section of the egg in its orthogonal plane to the joining plane of the perimeter edges of the two chocolate and/or pastry cream half-shells, with a container inside for a surprise according to the invention;

figure 2 shows an enlarged view of the joining part of the internal and external half-shells according to the invention;

With reference to the figures mentioned, an egg for the confectionery industry is shown indicated overall with the reference number 1.

The egg 1 comprises two identical half-shells 2, 3 each in turn comprising an internal chocolate and/or pastry cream half-shell 4, 5 externally covered by a corresponding wafer biscuit half-shell 6, 7.

In the solution shown purely by way of example the perimeter edge 8, 9 of each external wafer biscuit half-shell 6, 7 is set back from the perimeter edge 10, 11 of the corresponding internal chocolate and/or pastry cream half-shell 4, 5.

Advantageously, the egg 1 has a uniform increase in thickness of chocolate along the whole perimeter edge 10, 11 of each internal chocolate and/or pastry cream half-shell 4, 5 and a uniform decrease in thickness of each wafer biscuit half-shell along the whole perimeter edge 8, 9 of each external wafer biscuit half-shell 6, 7.

In particular, each internal chocolate and/or pastry cream half-shell 4, 5 has a central portion 12, 13 in which the chocolate has a constant thickness and a peripheral portion 14, 15 including the perimeter edge 10, 11 of each internal chocolate and/or pastry cream half-shell 4, 5 in which the chocolate has a uniform increase in thickness with respect to the thickness of the chocolate and/or pastry cream in the central portion 12, 13.

Each external wafer biscuit half-shell 6, 7 instead has a central portion 16, 17 in which the wafer biscuit has a constant thickness and a peripheral portion 18, 19 including the perimeter edge 8, 9 of each external wafer biscuit half-shell 6, 7 in which the wafer biscuit has a uniform decrease in thickness with respect to the thickness of the wafer biscuit in the central portion 16, 17.

The central portion 16, 17 of each external wafer half-shell 6, 7 may have a greater thickness than that of the central portion 12, 13 of each internal chocolate and/or pastry cream half-shell 4, 5.

The sum of the thickness of chocolate at the central portion 12, 13 of each internal chocolate and/or pastry cream half-shell 4, 5 and the thickness of the wafer biscuit at the central portion 16, 17 of each external wafer biscuit half-shell 6, 7 is the same as the sum of the thickness of chocolate and/or pastry cream at the perimeter edge 10, 11 of each internal chocolate and/or pastry cream half-shell 4, 5 and the thickness of each wafer biscuit at the perimeter edge 8, 9 of each external wafer biscuit half-shell 6, 7.

By way of example, an egg is realized that has a height of approximately 70 mm and a width of approximately 50 mm with a thickness of chocolate and/or pastry cream equal to 1 mm at the central portion 12, 13 of each internal chocolate and/or pastry cream half-shell 4, 5, with a thickness of 2 mm of the wafer biscuit at the central portion 16, 17 of each external wafer biscuit half-shell 6, 7, with a thickness of chocolate and/or pastry cream of 1.5 mm at the perimeter edge 10, 11 of each internal chocolate and/or pastry cream half-shell 4, 5 and a thickness of 1.5 mm of wafer biscuit at the perimeter edge 8, 9 of each external wafer biscuit half-shell 6, 7.

The thickening of each internal chocolate and/or pastry cream half-shell 4, 5 and the thinning of each external wafer biscuit half-shell 6, 7 are defined by a discontinuity in the variation of the radius of curvature of matching surfaces 20, 21, 22, 23 between each internal chocolate and/or pastry cream half-shell 4,5 and the corresponding external wafer biscuit half-shell 6, 7.

In particular, such matching surfaces 20, 21, 22, 23 have a discontinuity in the variation of the radius of curvature considered in reference to any orthogonal plane to the joining plane α between two half-parts 2, 3, thus defining flattened areas 24, 25, 26, 27 of the matching surfaces 20, 21, 22, 23.

The procedure for the realization of the egg 1, in the non-limiting example in which the internal shell is made of chocolate, is as follows.

Through a first mould the external wafer biscuit half-shells 6, 7 are moulded.

In particular, after positioning a mixture on the male half-mould the first mould is closed, keeping the male half-mould still and making the female half-mould descend onto the male half-mould which by crushing the mixture causes it to spread uniformly into the moulding cavity.

When the moulded product solidifies, the first mould is opened, and the rough wafer biscuit half-shells 6, 7 are extracted, which are finally finished by milling to confer suitable smoothness and uniformity to their perimeter edges 8, 9.

The wafer biscuit half-shells 6, 7 are then inserted into a second mould in which the corresponding internal chocolate and/or pastry cream half-shells 4, 5 are overmoulded.

In the second mould, the male half-mould has an opening into which an injector is fixed, equipped with a heating means for maintaining the correct temperature of the tempered chocolate at the inlet to the moulding cavity and a heat insulation system for isolating the heating means from the male half-mould which is instead cooled for the solidification of the melted chocolate injected into the moulding cavity.

In substance, the second mould is first closed, then the injector injects the melted chocolate into the moulding cavity, and finally, after the solidification of the moulded product, the second mould opens.

The moulding is performed so that the perimeter edge 10, 11 of the internal chocolate and/or pastry cream half-shells 4, 5 slightly raises the perimeter edge 8, 9 of the external wafer biscuit half-shells 6, 7.

Subsequently, the two parts 2, 3 are joined, juxtaposing the two internal chocolate and/or pastry cream half-shells 4, 5 along their perimeter edges 10, 11, so as to create an empty space 50 between the spaced perimeter edges 8, 9 of the external wafer biscuit half-shells 6, 7.

Finally, the two juxtaposed chocolate half-shells 4, 5 are joined together by heating so as to soften their juxtaposed perimeter edges 10, 11 in order to cause the interpenetration of the juxtaposed perimeter edges 10, 11 and the chocolate to spread which totally fills the empty space 50.

This spreading of chocolate allows a valid join to be obtained between the two internal chocolate half-shells and the two external biscuit half-shells.

The egg for the confectionery industry based on chocolate and/or pastry cream and the procedure for its realization thus conceived are susceptible to numerous modifications and variants, all of which falling within the scope of the inventive concept. Moreover, all details may be replaced with other technically equivalent elements.

In practice the materials used, as well as the dimensions, can be any according to needs and the state of the art.

CLAIMS

1. An egg (1) for the confectionery industry, characterized in that it comprises two half-parts (2, 3), each one comprising an internal chocolate and/or pastry cream half-shell (4, 5) externally covered by an external wafer biscuit half-shell (6, 7), there being comprised a uniform increase in the thickness of the chocolate and/or pastry cream along a perimeter edge (10, 11) of the internal chocolate and/or pastry cream half-shell (4, 5) and a uniform decrease in the thickness of the wafer biscuit along a perimeter edge (8, 9) of the external wafer biscuit half-shell (6, 7).
2. The egg (1) for the confectionery industry according to claim 1, characterized in that the internal chocolate and/or pastry cream half-shell (4, 5) has a central portion (12, 13) in which the chocolate and/or pastry cream is of a constant thickness and a peripheral portion (14, 15) in which the chocolate and/or pastry cream exhibits said increase in thickness with respect to the thickness of the chocolate and/or pastry cream in said central portion (12, 13), and in that the external wafer biscuit half-shell (6, 7) has a central portion (16, 17) in which the wafer biscuit is of a constant thickness and a peripheral portion (18, 19) in which the wafer biscuit exhibits said decrease in thickness with respect to the thickness of the wafer biscuit in said central portion (16, 17).
3. The egg (1) for the confectionery industry according to any one of claim 1 and 9, characterized in that the perimeter edge (8, 9) of said external wafer biscuit half-shell (6, 7) is set back with respect to the perimeter edge (10, 11) of said internal chocolate and/or pastry cream half-shell (4, 5).
4. The egg (1) for the confectionery industry according to claim 2 or 3, characterized in that in said central portion (12, 13, 16, 17), the thickness of the wafer biscuit is greater than the thickness of the chocolate and/or pastry cream.

5. The egg (1) for the confectionery industry according to any one of claims 2 to 4, characterized in that the sum of the thickness of the chocolate and/or pastry cream and the wafer biscuit at said central portion (12, 13, 16, 17) is equal to the sum of the thickness of the chocolate and/or pastry cream and the wafer biscuit at the perimeter edge (8, 9, 10, 11) of the internal chocolate and/or pastry cream half-shell (4, 5) and of the external wafer biscuit half-shell (6, 7).
6. The egg (1) for the confectionery industry according to any one of claims 1 to 5, characterized in that said uniform increase in thickness and said uniform decrease in thickness are defined by a discontinuity in the variation of the radius of curvature of matching surfaces (20, 21, 22, 23) between the internal chocolate and/or pastry cream half-shell (4, 5) and the external wafer biscuit half-shell (6, 7).
7. The egg (1) for the confectionery industry according to claim 6, characterized in that said matching surfaces (20, 21, 22, 23) have flattened areas (24, 25, 26, 27) defined by a radius of curvature that changes.
8. A procedure for realizing an egg (1) for the confectionery industry, said egg (1) being made up of two half-shells (4, 5) made of chocolate and/or pastry cream, each half-shell (4, 5) being externally covered by a corresponding external half-shell made of wafer biscuit (6, 7), said procedure being characterized in that it comprises the following steps:
 - moulding the two external wafer biscuit half-shells (6, 7) with a uniform decrease in the thickness along a perimeter edge (8, 9) thereof;
 - on each external wafer biscuit half-shell (6, 7), moulding a corresponding internal chocolate and/or pastry cream half-shell (4, 5) with a uniform increase in thickness along a perimeter edge (10, 11) thereof, wherein the perimeter edge (8, 9) of the external wafer biscuit half-shell is arranged in a position set back from the perimeter

- edge (10, 11) of the corresponding internal chocolate and/or pastry cream half-shell (4, 5);
- juxtaposing the two internal chocolate and/or pastry cream half-shells (4, 5) along their perimeter edges (10, 11), so as to create an empty space (50) between the spaced perimeter edges (8, 9) of said external wafer biscuit half-shells (6, 7); and
 - joining the two juxtaposed internal chocolate and/or pastry cream half-shells (4, 5) by heating so as to soften said juxtaposed perimeter edges (10, 11), thus causing interpenetration of said juxtaposed perimeter edges (10, 11) and causing the chocolate and/or pastry cream to spread in said empty space (50).

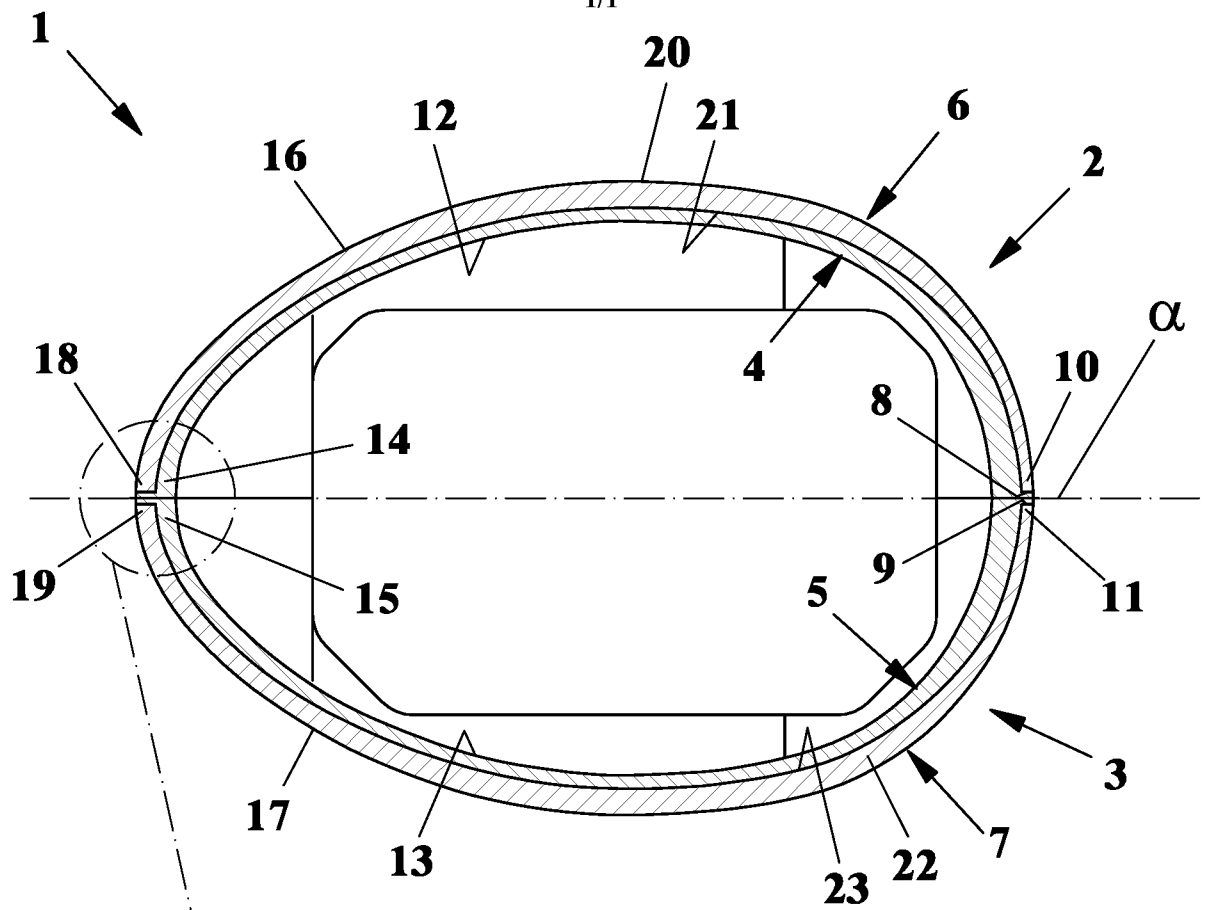


FIG. 1

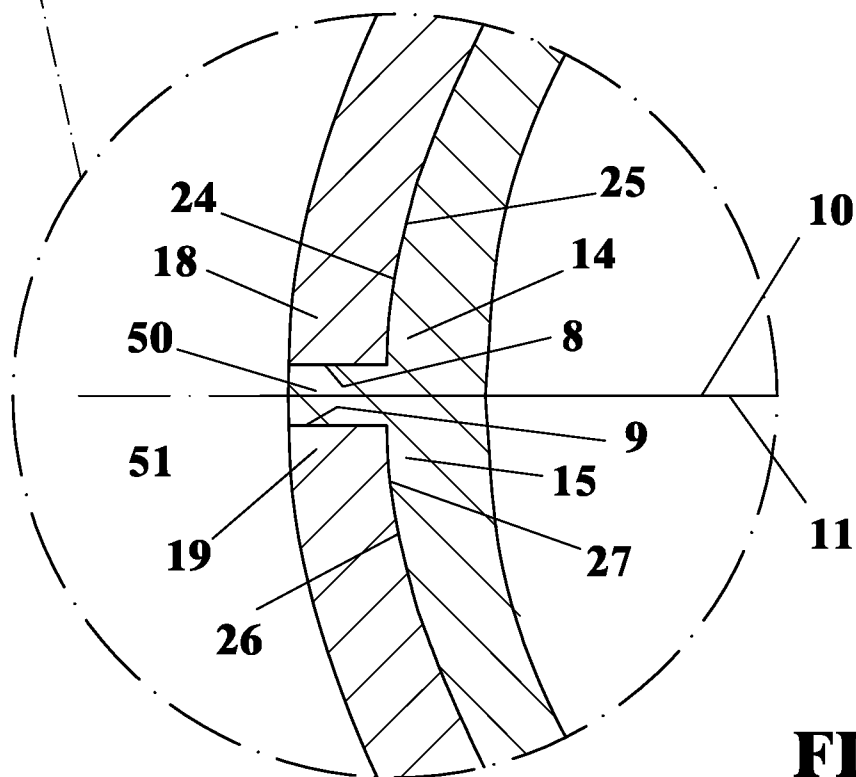


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/059106

A. CLASSIFICATION OF SUBJECT MATTER
INV. A23G1/00 A23G1/54
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
A23G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	BE 1 017 177 A3 (CRUYSBERGHS RUDIGER [BE]) 1 April 2008 (2008-04-01) page 1; claims; figure 1	1-8
A	EP 1 018 302 A1 (FERRERO OHG [DE]) 12 July 2000 (2000-07-12) columns 1-5; claims; figures	1-8
A	US 2015/272157 A1 (VACCARELLA PAOLO [IT] ET AL) 1 October 2015 (2015-10-01) pages 1-3; claims; figures	1-8
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search 12 June 2017	Date of mailing of the international search report 21/06/2017
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Boddaert, Peter
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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Information on patent family members

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